

**Work Order ID 61855**

Wednesday, September 08, 2010 9:17:01 AM

Page 1

Item ID: D212-664-101TRN

Accept

Setup Start

Revision ID:

Stop

Item Name: Crosstube Turning Detail

Start Date: 9/8/2010 Start Qty: 1.00

Required Date: 9/24/2010 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

Date: 10-9-08 Tooling:

Date:

QC:

Date: SPC (Y/N):

Date:

Run Start

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

Draw Nbr

Revision Nbr

D212-664-141

Rev D

100

0.00



Mori Seiki

MORI SEIKI CNC LATHE LARGE

Memo

0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA113  
2-Turn first side as per Folio FA113  
3-File down transition lines smooth.

Q.A. 10-09-140

110

0.00



QC

QC1- Inspect dimensions to dimension sheet

Memo

0.00

Quality Control

Q.A. 10-09-140

120

0.00



Mori Seiki

MORI SEIKI CNC LATHE LARGE

Memo

0.00

Mori Seiki CNC Lathe Large

1-Turn second side as per Folio FA113  
2-File down transition lines smooth.  
3-Remove sand and plugs

Q.A. 10-09-140

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries

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Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

130

QC1- Inspect dimensions to dimension sheet

0.00



QC

Memo

0.00

Quality Control

Am 10-09-14

140

QC8- Inspect parts - second check

0.00



QC

Memo

0.00

Quality Control

8/21/09/14

10

150

Crosstubes Chemical Conversion

0.00



HandFXtube

Memo

0.00

Hand Finishing Crosstubes

DP

10-9-14

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Page 3

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Setup Start



Revision ID:

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Cust Item ID:

Required Date: 9/24/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

160

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

1 X 2 MB 10-09-14

170

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and Stock in Kanban rack  
Location: *X-tube*

DP 10-9-14

1

180

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

10/09/15

MF 10-9-15

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**NOTE:** Date & initial all entries

# Picklist Print

Wednesday, September 08, 2010 9:17:05 AM

Page 1

Work Order ID: 61855



Parent Item: D212-664-101TRN



Parent Item Name: Crosstube Turning Detail

Start Date: 9/8/2010

Required Date: 9/24/2010

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A 08-03-06 new issue DD verified by:ec  
IPP Rev B 08.04.02 removed Polish EC verified by: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D6005-128		Manufactured	No			120	Each	43.0000	1	1			
Crosstube Material													

*A-n 10-09-14*

Location

Loc Qty

Loc Code

LG

43

53593

9

57911

34

1

W/O:		WORK ORDER CHANGES					
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**NOTE:** Date & initial all entries



<b>DART AEROSPACE LTD</b>		<b>Work Order:</b> 61855
<b>Description:</b> Crosstube Assembly (205/212/412 High Fwd)		<b>Part Number:</b> D212-664-141
<b>Inspection Dwg:</b> D212-664-141 Rev: D		<b>Page 1 of 1</b>

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

Inspection Sheet	Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.200	+/-0.010	0.200	/		vern Amoy	
	R0.063	+/-0.010	R0.063	/		R-L	
	2.740	+0.005/-0.000	2.745	/		Amoy	
	5.097	+/-0.030	5.097	/		"	
	2.304	+0.005/-0.000	2.309	/		"	
	2.340	+0.005/-0.000	2.345	/		"	
	2.398	+0.005/-0.000	2.403	/		"	
	2.448	+0.005/-0.000	2.453	/		"	
	2.498	+0.005/-0.000	2.503	/		"	
	2.549	+0.005/-0.000	2.554	/		"	
	2.599	+0.005/-0.000	2.604	/		"	
	2.671	+0.005/-0.000	2.676	/		"	
	2.701	+0.005/-0.000	2.706	/		"	
SIDE B	0.200	+/-0.010	0.200	/		Amoy	
	R0.063	+/-0.010	R0.063	/		R-L	
	2.740	+0.005/-0.000	2.740	/		Amoy	
	5.097	+/-0.030	5.097	/		"	
	2.304	+0.005/-0.000	2.309	/		"	
	2.340	+0.005/-0.000	2.345	/		"	
	2.398	+0.005/-0.000	2.403	/		"	
	2.448	+0.005/-0.000	2.453	/		"	
	2.498	+0.005/-0.000	2.503	/		"	
	2.549	+0.005/-0.000	2.554	/		"	
	2.599	+0.005/-0.000	2.604	/		"	
	2.671	+0.005/-0.000	2.676	/		"	
	2.701	+0.005/-0.000	2.706	/		"	
	126.514	+/-0.020	126.514	/		Amoy	

<b>Measured by:</b> Q. J.	<b>Audited by:</b> S.	<b>Prototype Approval:</b>	N/A
<b>Date:</b> 10.09.14	<b>Date:</b> 10/09/14	<b>Date:</b>	N/A

Rev	Date	Change	Revised by	Approved
A	05.04.27	New Issue (P/O D412-664-101)	KJ/JLM	
B	06.03.15	Tolerance revised for 5.097 per Dwg Rev update	KJ/JLM	
C	07.05.28	Dwg Rev updated	KJ/JLM	
D	10.02.02	Dimension 126.514 was 126.51	KJ	

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**NOTE:** Date & initial all entries

Item	Qty -141	Qty -141B	Part Number	Description
1	X		D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
2		X	D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)
3	1	1	D6005-128	CROSSTUBE
4	2	2	D2893-1	SUPPORT
5	4	4	D3595-063-450	RUBBER CUSHION
6	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

#### GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6005-128  
FINISHED LENGTH = 126.514±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF  
USING VIBRATING STYLUS
- 7) WEIGHT: D212-664-141 = 33.6 lbs (PER IIN-D212-664)  
D212-664-141B = 33.6 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHIP TO  
PART NO.  
ENGINE NO.  
UNCONTAINED  
SUBJECT TO  
WITHIN  
WORK  
NO. 41855  
2810905

**RELEASED**  
2009-10-29

D	REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD -141B (ZN B4-2, D4-2); REMOVED REF & ADD TOLERANCES (ZN B4-3, C6-3, C8-3 & B6-3); RELOCATED FLAG #6 PER PAR 08-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4	RF	09.09.30
C	REMOVE -851 ABRASION STRIP; ADD MAGNOBOND 6398. CUSHION, REVERSE CLAMPS	PH	07.03.08
B	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	PH	05.02.04
A	NEW ISSUE	PH	00.12.12
REV.	DESCRIPTION	BY	DATE
DESIGN	PH	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	90	DRAWING NO.	REV. D
MFG. APPR.	10	D212-664-141	SHEET 1 OF 4
APPROVED	10	TITLE	SCALE
DE APPR.	10	XTUBE ASSY (205/212/412 HI FWD)	NTS
DATE	09.09.30	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COPIES OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

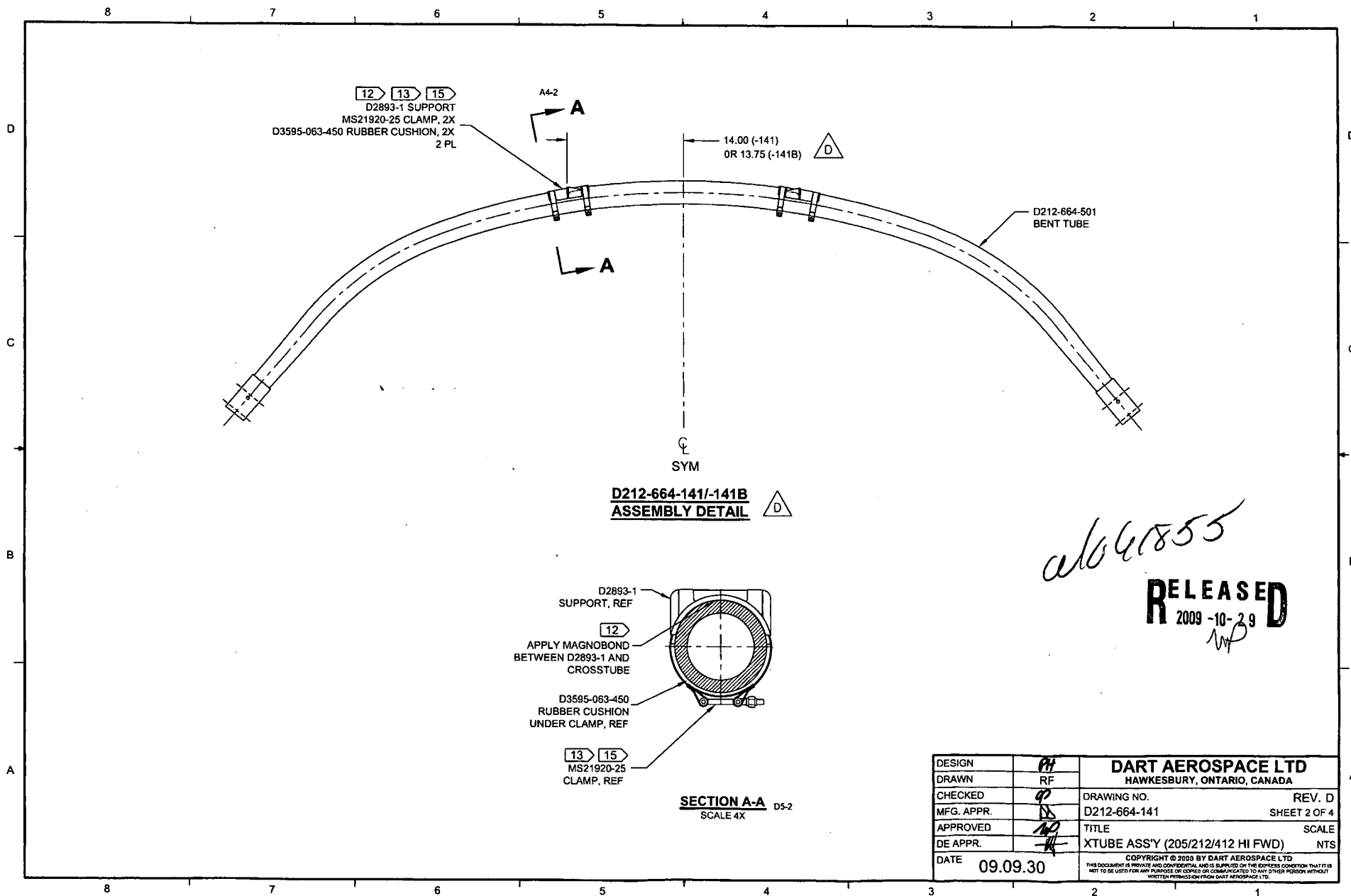
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DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	9P	DRAWING NO.	REV. D
MFG. APPR.	18	D212-664-141	SHEET 2 OF 4
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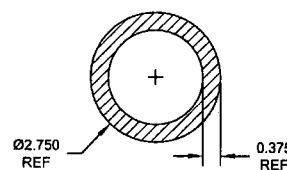
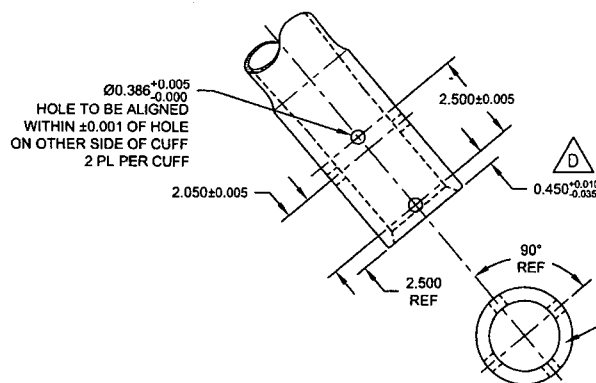
**NOTE:** Date & initial all entries

**D212-664-501**  
**BENDING AND DRILLING DETAIL**



*W061855*

**RELEASED**  
2009-10-29  
*MD*



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DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	Q	DRAWING NO.	REV. D
MFG. APPR.	JS	D212-664-141	SHEET 3 OF 4
APPROVED	MD	TITLE	SCALE
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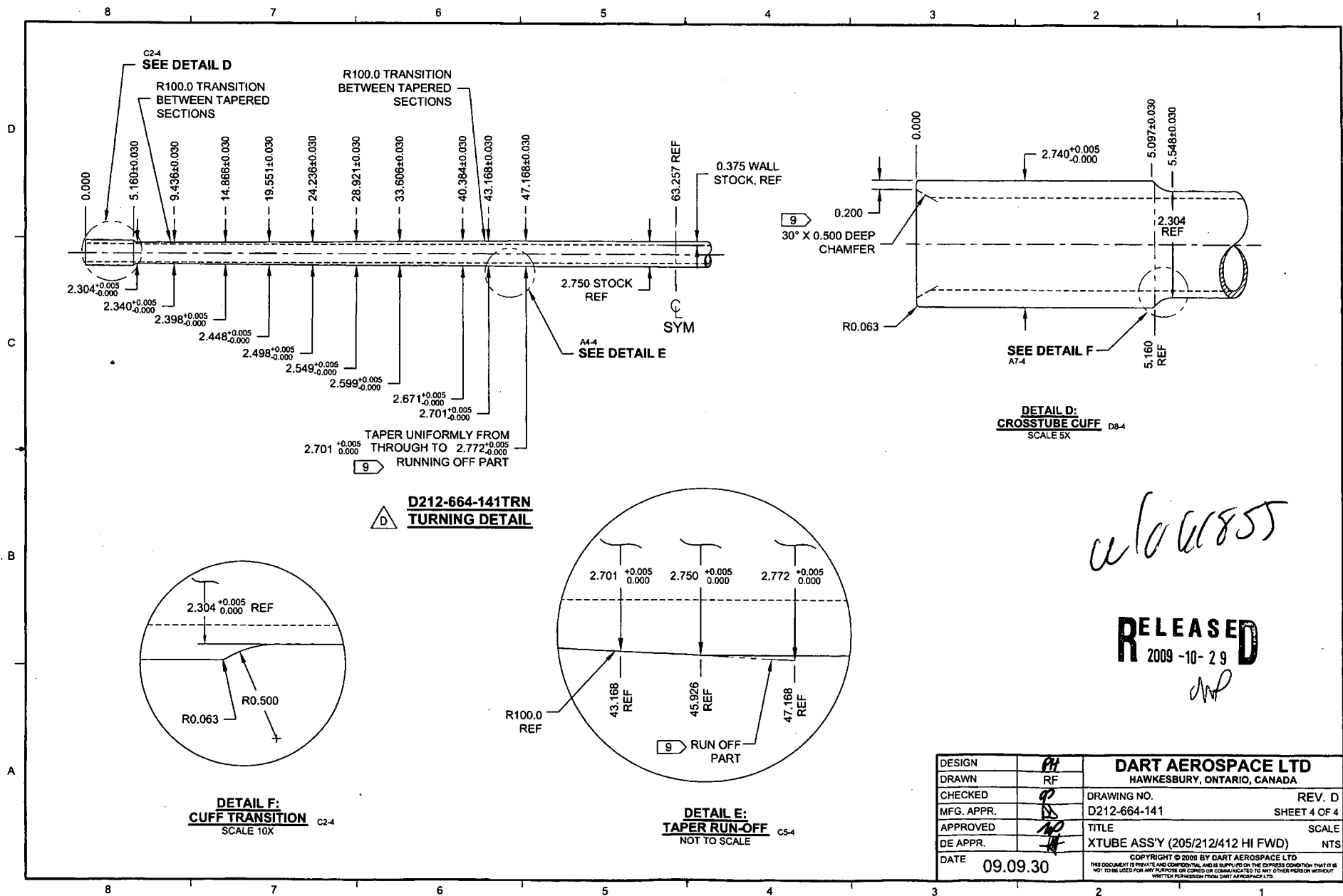
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